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times yellow. Structure fine granular, approaching micaceous. Hardness 2—2·5 S. G. 2·05. B. B. alone blackens slightly and fuses rather easily to a white slag. With carb. soda fuses readily and with effervescence to a greenish bead. In borax dissolves readily iron reaction. In microcosmic salt dissolves readily, except silica skeleton, bead yellow while hot, bluish opalescent when cold. In closed tube yields acid water.

With considerable difficulty 0·679 gm. of the mineral, free from admixture, was obtained and submitted to analysis with the following percentage result:

Water.....	3·42
Fluorine.....	·75
Silica.....	36·49
Sesquioxide of iron.....	7·54
Alumina.....	24·09
Soda.....	16·03
Loss.....	11·68

100·00

The very small quantity of the mineral which could be procured prevented a more satisfactory result, but from the foregoing characteristics I feel justified in pronouncing it a new species, and hope that a larger quantity may be procured and a correct analysis made.

Pachnolite, besides its usual occurrence in honey-combed cryolite, nearly or always in juxtaposition with the so-called Hagemannite, has been observed in crystals implanted on massive cryolite, and also coating crystals of the latter, mixed with microscopic crystals of cryolite. The crystals of pachnolite are always small, rarely exceeding the fiftieth of an inch in diameter, but those of cryolite have been found measuring over 3-10ths of an inch cube. The crystals of carbonate of iron, found in the cryolite, have probably never been excelled for size and beauty. They are usually simple rhombohedrons, often of fine polish and measuring from half an inch to four inches across. A black blende, containing much iron, has been found in the massive cryolite, crystallized in perfect octahedra.

Philadelphia, March 23, 1868.

Description of Sixteen New Species of the Genus UNIO of the United States.

BY ISAAC LEA.

UNIO MURRAYENSIS.—Testa lævi, obliqua, tumida, solida, valde inæquilaterali, postice rotundata, antice truncata; valvulis crassis, antice crassioribus; natibus valde elevatis, tumidis; epidermide luteo-fuscata, concentricovittata, eradiata; dentibus cardinalibus crassis, subelevatis; lateralibus crassis, obliquis rectisque; margarita argentea et iridescente.

Hab.—Murray County, Georgia, Maj. T. C. Downie; Etowah River, Georgia, Bishop Elliott.

UNIO FASSINANS.—Testa lævi, elliptica, subcompressa, inæquilaterali, postice obtuse angulata, antice rotundata; valvulis crassiusculis, antice crassioribus; natibus subprominentibus; epidermide tenebroso-rufo-fusca, eradiata; dentibus cardinalibus crassiusculis, compressis, obliquis; lateralibus sublongis, crassis, obliquis corrugatisque; margarita salmonis colore tincta, splendida et iridescente.

Hab.—Headwaters of Holston River, Washington Co., Va., Prof. E. D. Cope.

UNIO SPARUS.—Testa lævi, lato-elliptica, subinflata, valde inæquilaterali, postice obtuse angulata, antice rotundata; valvulis subtenuibus, antice crassioribus; natibus prominulis, ad apices minute undulatis; epidermide subcrocea, valde radiata; dentibus cardinalibus parvis, erectis, conicis; laterali-
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bus longis subcurvisque; margarita salmonis colore tincta et valde iridescente.

Hab.—Swamp Creek, North Georgia, Maj. T. C. Downie.

UNIO COPEI.—Testa lævi, elliptica, subcompressa, inæquilaterali, antice et postice rotundata; valvulis subcrassis antice crassioribus; natibus prominulis, ad apices undulatis; epidermide tenebroso-fusca, ad marginem squamosa, eradiata; dentibus cardinalibus subcrassis, elevatis, compressis, corrugatis, in utroque valvulo duplicibus; lateralibus longis, lamellatis, subcurvisque; margarita purpurea et valde iridescente.

Hab.—Headwaters of Holston River, Smith Co., Va., Prof. E. D. Cope.

UNIO CYLINDRELLUS.—Testa lævi, late elliptica, cylindracea, valde inæquilaterali, antice et postice rotundata; valvulis subcrassis, antice crassioribus; natibus prominulis; epidermide luteola, eradiata; dentibus cardinalibus parvis, subconicis corrugatisque; lateralibus longis subrectisque; margarita intus purpurea et valde iridescente.

Hab.—Duck Creek, Tenn.: Swamp Creek, Murray Co., Ga., Major Downie; and North Alabama, Prof Tuomey.

UNIO DIFFICILIS.—Testa lævi, elliptica, inflata, valde inæquilaterali, postice obtuse angulata, antice rotundata; valvulis tenuibus, antice crassioribus; natibus prominulis; epidermide luteola, valde radiata; dentibus cardinalibus parvis, conicis crenulatisque; lateralibus sublongis rectisque; margarita alba et valde iridescente.

Hab.—Swamp Creek, Ga., Major Downie; Holston River, Washington Co., Prof. Cope.

UNIO TOPEKAENSIS.—Testa lævi, lata, subcompressa, valde inæquilaterali, postice obtuse angulata, antice rotundata; valvulis crassiusculis, antice crassioribus; natibus prominulis, ad apices undulatis; epidermide tenebroso-fusca, radiata; dentibus cardinalibus erectis, compressis crenulatisque; lateralibus longis rectisque; margarita cæruleo-alba et valde iridescente.

Hab.—Topeka, Kansas, Prof. Daniels; Little Arkansas, Dr. Le Conte, &c.

UNIO BRAZOSENSIS.—Testa plicata, subrotunda, ventricosa, valde inæquilaterali, antice et postice rotundata; valvulis percrassis, antice crassioribus; natibus prominentibus, tumidis, incurvis, ad apices minute undulatis; epidermide tenebroso-rufo-fusca, eradiata; dentibus cardinalibus percrassis, solidis, erectis corrugatisque; lateralibus longis, subcrassis et obliquis; margarita argentea et valde iridescente.

Hab.—Dallas Co., Texas, Prof. Forshey; Brazos River, Dr. Linneum.

UNIO LINNECUMII.—Testa plicata, rotundata, subglobosa, valde inæquilaterali; valvulis precrassis, antice crassioribus; natibus prominentibus, tumidis, incurvis, ad apices minute undulatis; epidermide tenebroso-fusca, nigricante, eradiata; dentibus cardinalibus percrassis, solidis, erectis corrugatisque; lateralibus longis, subcrassis et obliquis; margarita argentea et valde iridescente.

Hab.—Dallas County, Texas, Prof. Forshey; Brazos River, Texas, Dr. G. Linneum.

UNIO CORVINUS.—Testa lævi, elliptica, inflata, valde inæquilaterali; antice et postice rotundata; valvulis subcrassis, antice crassioribus; natibus vix prominentibus, epidermide nigra, subsquamea, eradiata; dentibus cardinalibus parvissimis decussatisque; lateralibus longis subrectisque; margarita alba et valde iridescente.

Hab.—Flint River, Geo., J. C. Plant and Dr. Neisler; Neuse River, N. C., Prof. Emmons.

UNIO CORVENCULUS.—Testa lævi, elliptica, subinflata, valde inæquilaterali; antice et postice rotundata: valvulis crassiusculis, antice crassioribus; nati-

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bus prominulis, ad apices subconcentrico-undulatis; epidermide nigricante, eradiata; dentibus cardinalibus parvis, erectis, subcompressis crenulatisque; margarita purpurea et iridescente.

Hab.—Flint River, Ga., J. C. Plant and Dr. Neisler; Darien, J. H. Couper.

UNIO PLANIOR.—Testa subsulcata, subtriangulari, ad latere planulata, inæquilaterali; valvulis crassiusculis, antice crassioribus; natibus subprominentibus; epidermide vel lutea vel ochracea, radiata; dentibus cardinalibus parvis, compressis striatisque; lateralibus longis, crassiusculis et obliquis; margarita alba et iridescente.

Hab.—Tennessee, Mr. H. Moores; Headwaters Holston River, Washington Co., Virginia, Prof. Cope.

UNIO VALLATUS.—Testa nodulosa, rotundata, lenticulari, subinflata, inæquilaterali; valvulis crassis, antice crassioribus; natibus subprominentibus; epidermide luteo-fusca, eradiata; dentibus cardinalibus pergrandibus, elevatis granulatisque; lateralibus crassis, curtis obliquisque; margarita argentea et iridescente.

Hab.—Alabama River, Dr. Showalter.

UNIO REFULGENS.—Testa nodulosa, rotundata, lenticulari, inæquilaterali; valvulis subcrassis, antice crassioribus; natibus prominulis; epidermide rufo-castanea, aliquanto polita; dentibus cardinalibus subgrandibus, eleganter corrugatis crenulatisque; lateralibus longiusculis, obliquis, minute corrugatis; margarita albida, ad marginem purpurecente et elegantissime iridescente.

Hab.—Oktibbeha River, Lauderdale Co., Miss., W. Spillman, M. D.

UNIO UHARÉENSIS.—Testa lævi, oblonga, ad latere planulata, inæquilaterali, postice biangulata, antice rotundata; valvulis crassiusculis, antice crassioribus; natibus prominulis; epidermide rufo-fusca, subsquamea, eradiata; dentibus cardinalibus parvis, striatis, in utroque valvulo duplicibus; lateralibus longis, lamellatis subcurvisque; margarita vel alba vel salmonis colore tincta.

Hab.—Uharee River, Montgomery Co., N. C., F. A. Genth, M. D.

UNIO SPHERICUS.—Testa nodulosa, valde inflata, subglobosa, fere æquilaterali; valvulis crassis, antice crassioribus; natibus elevatis; epidermide rufo-castanea, eradiata; dentibus cardinalibus pergrandibus, corrugatis crenulatisque; lateralibus curtis, crassis, corrugatis, obliquis subcurvisque; margarita argentea et valde iridescente.

Hab.—Pearl River, at Jackson, Miss., C. M. Wheatley.

Notes on some singular forms of Chinese species of *UNIO*.

BY ISAAC LEA.

In a paper on "Chinese Shells," by Dr. Baird and Mr. H. Adams, published in the Proceedings of the Zoological Society of London, May 9, 1867, there are some remarks and claims which call upon me for correction.

1st, "*Unio Douglasiæ*." It is stated that "in 1833 Dr. Gray shortly described and accurately figured in the 12th volume of Griffith's edition of Cuvier a species of *Unio*, which he called *U. Douglasiæ*," &c. Further, that "Mr. Lea, some years afterwards, from not knowing the shell as figured in Griffith, described and figured a species from China, which he named *U. Murchisonianus*, but which there is no doubt is the same as *U. Douglasiæ* of Gray." In the above statements there are several to which I beg leave to demur. It is suggested by these gentlemen that "perhaps from not knowing the shell (*Douglasiæ*) as figured in Griffith," I had "described and figured *Murchisonianus*, which there is no doubt is the *Douglasiæ* of Gray." In answer to this I 1868.]